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RASPBERRY PI BASED VEHICLE STARTER USING FACE DETECTION

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A B S T R A C T

The aim of this undertaking is to apply the Raspberry Pi for creating a facial recognition device for vehicle get admission to control. For future technology automobiles, this initiative adds state of the art safety measures. For the expected superior device, the Raspberry Pi will function a command module. Only legal and registered humans are allowed to function the auto because of the sturdy safety device. Generally secret is used to release and begin a vehicle.

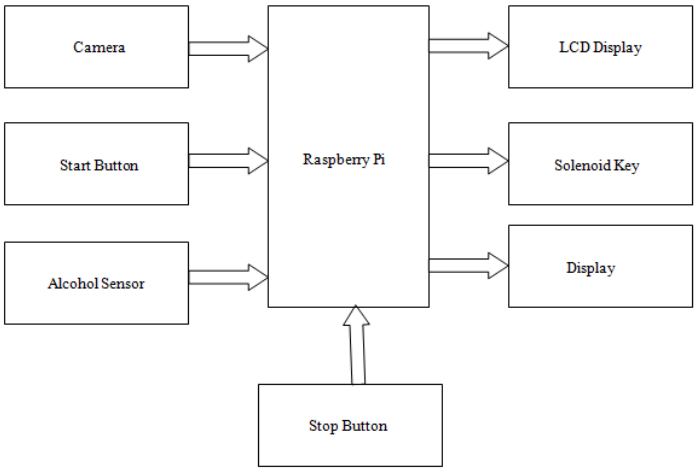
Keywords*: Raspberry Pi, Camera Module, Alcohol Sensor, Solenoid Switch*

1. INTRODUCTION

In this contemporary time several incident takes region like robbery, stealing unwanted the front takes place abruptly. So the protection does subjects in this each day life. People always live busy in their normal artwork moreover wants to ensure their safety of their cherished things. Sometimes they forget about approximatly to the look after their important things (keys, wallet, credit score rating gambling playing cards etc). Without the ones, they are now no longer capable of get proper of access to their home or any location they need. Traditional safety tool require the character a key, a safety password, an RFID card, or ID card to have get proper of access to to the tool. However, the ones safety systems have deficiencies example, they will be forgotten or stolen from unauthorized people. As the result, there can also additionally be need to increase software program application that guarantees a higher safety level is a template. One of the precise capabilities of our thoughts that it could anticipate best in pictures now not in words. Once you may forget about approximately to keep your Car's key but you will in no manner forget about approximately to hold a face with you. God has given each person a very precise face. Face is the most important part of our body, just so it could reflect many emotions of a character. From a long 365 days ago, we are the use of non-residing thing (smart gambling playing cards, plastic gambling playing cards, PINS, tokens, keys) for authentication and to get provide get proper of access to in constrained areas like ISRO, NASA, and DRDO . There are sorts of biometric physiological characteristics (like face, fingerprint, finger geometry, hand geometry, palm, iris, ear and voice) and behavioral characteristics (like gait, signature and keystroke dynamics). Sometimes your behavioral of inclinations also can moreover changes because of the illness, fear, hunger etc. Face detection and recognition tool is more cheap, simple, accurate and non-intrusive method as examine to distinctive biometrics. The tool will fall into instructions as face detection (1:1) and face recognition(1:N).In the face detection we must classify among face in the place of non face location even as in recognition method we must examine that single face picture graph with multiple pictures from the input picture graph. In This artwork uses BCM2835 processor, popularly referred to as Raspberry pi Board. The center of the board is the above processor. It is a RISC processor based mostly on ARM11. The board has precise capabilities like virtual camera interface and make contact with show display screen that make it suitable for real time picture graph processing Open cv consists of huge amount of constructed in functions for picture graph processing. It is beneath Neath BSD license and therefore libraries are free of proprietary cost. The full- fledged library functions simplify the complex mathematical operations.

2. METHODOLOGY

Block Diagram of proposed methodology is given below in Fig. 1.



Block Diagram contains Raspberry Pi, Camera Module, Alcohol Sensor, Solenoid Switch,LCD Display, Relay. Raspberry Pi is a small sized computer in our Project.

Raspberry Pi

Raspberry pi is a small sized computer, in our project it is used to capture and analyze data. Raspberry pi comes with a 2 GB in built RAM and storage can be accessed by using a SD card. Operating system for Raspberry Pi is also stored in the SD card. The Raspberry pi is used to capture data from camera module and alcohol sensor analyze it and send it to vehicle control relay.

Fig. 2. Raspberry Pi

Camera Module

Camera module is an important aspect of our system. The camera captures pictures of the user who comes in contact with the camera and then sends it toRaspberry pi module for analyzing the data.

Fig. 3. Camera Module

Alcohol Sensor

MQ3 is an alcohol sensor which senses the alcohol from the user and sends the data to Raspberry pi for analyzing. If alcohol is present the Car will not start and relevant error message is displayed on the app.

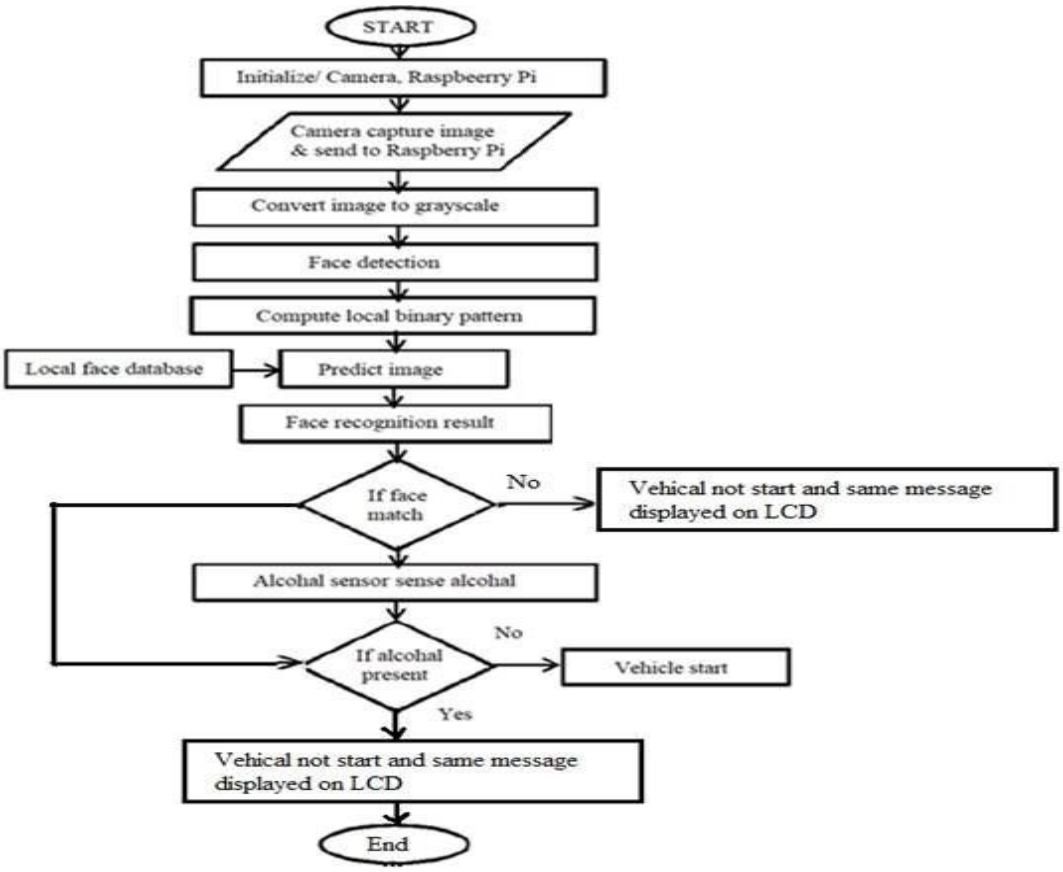
Fig. 4. Alcohol Sensor

Solenoid Key

The key transfer with solenoid is a key transfer with a constructed in small solenoid and the important thing locked via way of means of disconnecting the strength to it in order that door stays closed. This lock is appropriate for doorways supposed for crime prevention.

Fig.5 . Solenoid Key

3. FLOWCHART



4. RESULT

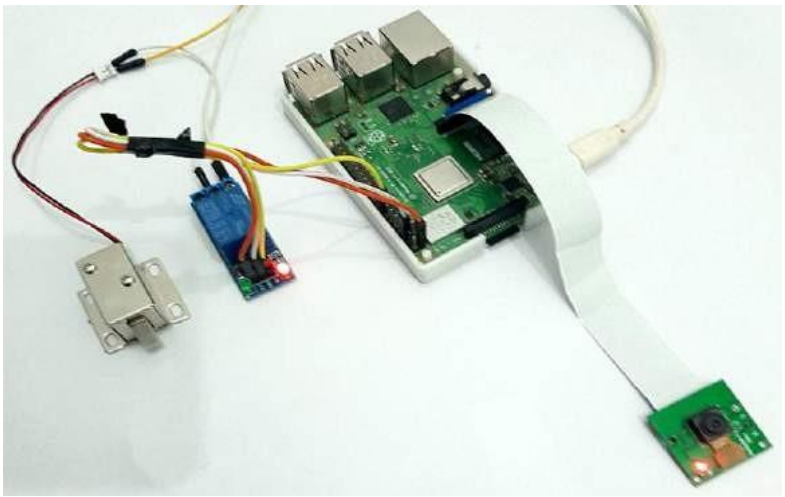


Fig.7 . Overall System Implementation

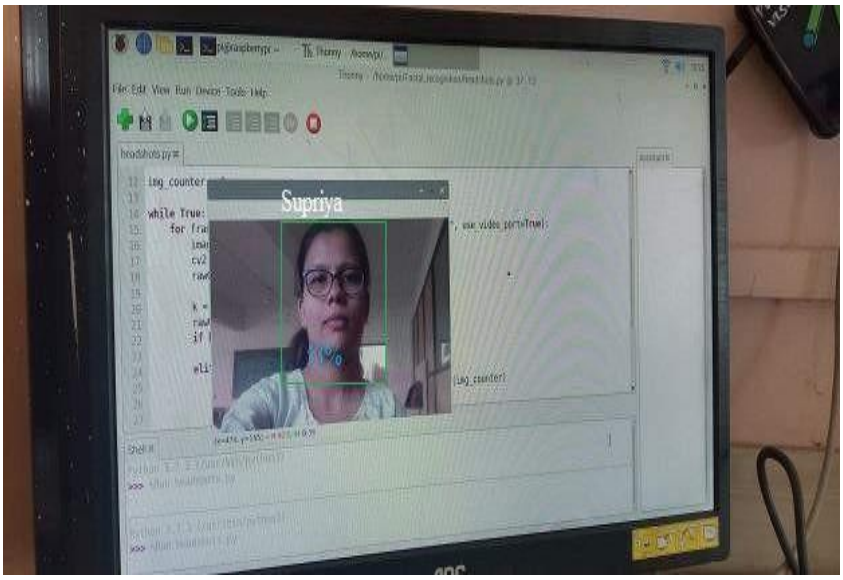


Fig.7 . Registered User Detected

5. CONCLUSIONS

The era can be hired in lots of locations, such as banks, hospitals, labs, and different state-of-the-art computerized systems, lowering the threat of unlawful front significantly. If there's a robbery, proof may be offered to the safety department. The Raspberry Pi-primarily based totally facial reputation machine is smaller, lighter, and consumes much less power, making it extra accessible than a PC-primarily based totally machine. It is simpler to construct programs on Linux because of the open supply code. Python became used to create the machine. Face detection in actual time and face detection from detailed photos, i.e. item identification, had been each done.In phrases of picture processing rate, the machine's effectiveness became assessed. The outcomes of the research proven that the cutting-edge technique has a excessive overall performance productiveness and may be utilised to comprehend faces even in low-first-rate photos.

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